

Before the
Federal Communications Commission
Washington D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Amendment of the Commission's)
Rules to Establish New Personal)
Communications Services)

GEN Docket No. 90-314
ET Docket No. 92-100

To: The Commission

Reply Comments

The Wireless Information Networks Forum ("WINForum") is an alliance of leading information technology companies that are working together to obtain and effectively employ radio spectrum for unlicensed, user-provided voice and data personal communications services ("User-PCS"). WINForum enthusiastically supports the Commission's proposal to allocate spectrum in the 2 GHz emerging technologies bands for User-PCS services including wireless local-area computer networks, cordless telephone systems, and new types of portable information devices.¹

The comments on the Notice of Proposed Rulemaking in the above-referenced proceeding (the "Notice") amply demonstrate the interest in, and need for, an adequate, dedicated allocation for unlicensed User-PCS. Yet as WINForum and many other commenters made clear, there are two fundamental problems with the proposed allocation for User-PCS contained in the Notice.

- A larger allocation than the 20 MHz proposed in the Notice is needed if User-PCS is to have the potential to satisfy an enormous variety of computer, telephone and multimedia applications. The WINForum calls on the Commission to make an immediate initial allocation of 40 to 65 MHz for unlicensed User PCS devices.²
- The unlicensed PCS spectrum must be exclusive and cannot be shared with the fixed microwave services, as proposed in the Notice.³ Comments filed by licensees in

¹Proposed §15.253 (a)(1) and (2) provide that the unlicensed PCS spectrum shall be used for "cordless telephones, including wireless PBX systems" and "data communications between computer systems."

²See WINForum Comments and Replies in ET 92-9 and Comments in GEN 90-314.

³Notice at 107. There are several hundred Operational Fixed Service operations within the 1910-1930

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the fixed microwave services, as well as those filed by PCS interests, overwhelmingly rejected the concept of sharing spectrum with unlicensed devices.

I. Unlicensed Devices Require More Spectrum Than The 20 MHz Proposed by the Commission

As various commenters noted, the proposed 20 MHz allocation for unlicensed PCS will be insufficient to satisfy the demands placed upon these services. The likely consequences of such a limited allocation will be premature exhaustion of the available spectrum, degraded quality and availability of service, and the creation of obstacles to competition and innovation.⁴

For example, as The Ericsson Corp. noted, studies of unlicensed voice services by the European Telecommunications Standards Institute show that "20 MHz of spectrum is required for economic implementation of 100% wireless telephones in a 3-dimensional city office environment with uncoordinated adjacent indoor system installation."⁵ Yet the use of wireless telephones for in-building telephone service is only one of many applications of User-PCS. If this single application will require the spectrum allocated for all User-PCS services, any effort to provide the full range of User-PCS services in a 20 MHz band will fail.

Similarly, Andrew Corp., a global supplier of electronic communication products and services, described the effect the FCC's limited proposed 20 MHz allocation would have on the development of in-building wireless LAN technologies: "Such an allocation discourages technology innovators and equipment manufacturers

MHz band proposed for unlicensed PCS.

⁴See, e.g., Comments of California Microwave Inc. at 2 ("User-PCS requires more than 20 MHz. ...[I]t can be shown that a 20 MHz bandwidth system with interference ranges of the order of 50-100 meters can provide voice and data service only to a small percentage ($\leq 10\%$) of users in a typical office, conference or classroom density."); Comments of Pulse Engineering Inc. at 3 ("the spectrum being made available for User-PCS is not sufficient for cost-effective frequency hopping. ...[T]he Commission has underestimated the extent of the spectrum requirements for User-PCS."); Comments of Xircom Corp. at 2 ("between 5 and 10 MHz bandwidth is required for a wireless LAN to have performance comparable with a standard wired LAN. Since several wireless LANs will often be within radio range of each other, a total bandwidth on the order of 50 MHz is necessary. Other applications such as wireless PBX systems will require similar amounts of spectrum."); Comments of ROLM at 19 (without additional spectrum for unlicensed systems "there is serious concern that all users will experience a continuing degradation of service as the market expands, the sharing etiquette will be expensive to implement (or may not be achievable) and that yet unforeseen services will be handicapped or abandoned.")

⁵Comments of The Ericsson Corp. at 21.

from devoting financial and other resources to the development of in-building wireless LANs.”⁶

The record of this proceeding makes a compelling case for an immediate increase in the spectrum allocation for unlicensed User PCS devices. WINForum understands that such increase in the allocation will necessitate requirements to clear additional frequencies for unlicensed operations.⁷

II. The Unlicensed PCS Allocation Must Be Exclusive

In proposing to allocate spectrum to unlicensed PCS devices, the Commission recognized “that proposed unlicensed services will require relatively clear spectrum.”⁸ However, it concluded that technical standards, coordination procedures, and the use of specific portions of the 2 GHz spectrum could minimize interference with existing fixed users,⁹ and therefore proposed a plan that would require sharing of the 2 GHz band between PCS and fixed microwave users for an extended period of time.

While the procedures proposed by the Commission may work well for licensed PCS, they present unique and unavoidable problems for unlicensed PCS devices. The central mechanism for protecting the fixed microwave service against interference from unlicensed devices is found in proposed rule Section 15.253(7), which includes a requirement to make appropriate technical changes in the unlicensed equipment to alleviate the interference, if the Commission so determines.

As the WINForum and the majority of commenters that addressed this issue pointed out, the use of technical standards, including case-by-case mandatory modification of unlicensed equipment, to protect the fixed microwave service is not realistic. User-PCS transmitters in the field may number in the tens of millions. Neither the Commission nor the equipment manufacturers can maintain a record of

⁶Comments of Andrew Corp. at 8.

⁷The WINForum recognizes the FCC’s desire to accommodate incumbent 2 GHz users when reallocating the ET spectrum to new services, and accepts the need for such services to bear the reasonable costs associated with reaccommodating these users. The WINForum reiterates its willingness to design and help implement mechanisms for assisting incumbent microwave operators with the financial and other burdens associated with reaccommodation.

⁸Notice at note 30.

⁹Notice at 43.

the locations or owners of these devices.¹⁰ It will be impossible to track the locations of specific devices or the emissions attributable to any particular user.

Several commenters, in addition to WINForum members, recognized this reality of unlicensed operation. As BellSouth observed:

“Much of the unlicensed equipment can be expected to be purchased and used by consumers; there will be no system operator who can coordinate use of the spectrum. Once in the hands of the consumer, the location of customer equipment will be unrestricted and unknown. This will make spectrum usage by existing microwave licensees very difficult, because there will be no way to track competing usage, no party with whom to coordinate, and no way to enforce the right of interference protection to which their primary status entitles them. Relocation will avoid these problems.”¹¹

III. Conclusion

An allocation of 40 to 65 MHz would facilitate commercial development of a wide range of new applications without artificial bandwidth constraints. The wider allocation will serve to maintain the United States' competitive standing in this critically important industry. Opportunities for wireless products, and the job opportunities that result, are directly related to the applications manufacturers can deploy.

User-PCS requires adequate and exclusive spectrum if it is to deliver local-area connectivity wherever people live, work, learn and communicate. The Wireless Information Networks Forum urges the Commission to allocate spectrum for unlicensed PCS devices in accordance with the views expressed herein.

¹⁰The Commission retains (though it rarely uses) the authority to order operators of Part 15 devices to cease operation should harmful interference occur (Section 15.5(c)). For the Commission to apply such authority (or to apply proposed Section 15.253(7)) to the consumers of unlicensed devices or through manufacturers or resellers to end-users, could introduce staggering problems of implementation. For example, many unlicensed PCS transmitters will be mobile and portable and thus especially difficult to locate.

Permittees obtaining provisional authorizations, e.g. under Part 5 rules, could operate systems at particular locations prior to release of the spectrum for Part 15 use.

¹¹Comments of BellSouth Corp. at 4.

Respectfully submitted,
The Wireless Information Networks Forum

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